to reach them; to solve the different geographical problems which would naturally offer, was the first part of the programme the Commission had to carry out. We were required, besides, to report any miscellaneous facts which might throw light on the history, the philology, the ethnography, or the religion of the peoples along the great river, which was to be as much as possible the guiding-thread of our expedition. We had instructions to seek for a passage from Indo-China to China; an enterprise in which the English have always failed as yet."

M. Drouyn de Lhuys, the Minister of Foreign Affairs, heartily approved of the scheme, and appointed young de Carné to represent his department on the expedition. The exploration party started from Saïgon in June, 1866, but they were doomed to disappointment, so far as regarded their main object, for it was ascertained that the Mekong abounded in rapids, cataracts, and obstructions of various kinds, which precluded all possibility of a route being found to China in that direction, and after encountering severe sufferings and hardships to which some of their number succumbed, including M. de Lagrée, the chief of the expedition, they returned to Saïgon after an absence of about two years and a half.

M. de Carné claims, as the actual results of the enterprise, so far as it was successful, to have "corrected the errors, and set at rest, by lifting the veil from the doubts which had hitherto led geographers to false and uncertain conclusions in describing the eastern zone of the Indo-Chinese peninsula. The capricious windings of the Mekong; the prolongation of its course to the west, at the 18th parallel of latitude; the importance of its affluents; the strength and volume of its waters, and, if I may venture to say so, the proof of its individuality, which, contrary to the received opinion (viz. of the union of the waters of the Mekong and Meïnam), continues to the end of its course; the certainty of its entry into Yunan, where it receives the waters of Lake Tali, and into Thibet, where it has its source—all these points were cleared up. In a word, we brought back precise information respecting the whole course of an immense river, which rises amidst the snows, and completes its course under a burning sun. On the other hand, there are the exact observations and seemingly well-founded information respecting the other rivers of Indo-China; as to their position in different parts of their course, and the limits of their basins; and, in addition, many particulars respecting a part of China itself, which had been hitherto the least known."

We understand that an official report of the expedition is in course of preparation, and we have no doubt the present work will be found to form a very useful supplement to it. The volume would, however, be rendered more valuable and complete by the addition of a few maps, the only one it at present possesses being a somewhat rough sketch of the route followed by the exploring party. Whether France will be able, as M. de Carné suggests, to establish a communication between her colony and China by the river Songkoï, which flows along the north of the Annamite peninsula, is a problem which yet remains to be solved.

G.I.F.C.

"*MOTHER EARTH'S BIOGRAPHY*"

Chronos: Mother Earth's Biography. A Romance of the New School. By Wallace Wood, M.D. (Trübner and Co.)

THERE can be but few with active minds who have not occasionally found, after having grasped the essential points of any inclusive theory, that in moments of ease and quiet thought, it is far from unpleasant to attempt to apply it, by a running analogy, to some series of phenomena entirely different from those to which it was originally intended to relate, and by taking detail after detail, rebuild it on a fresh foundation. Few, however, have the confidence to put their results on paper, and fewer still to submit them to the criticism of a ruthless public.

The theory of evolution has an intrinsic fascination of this kind, especially to those with a cynical turn of mind; for though developed on a purely physical basis, nevertheless its entire applicability to the intricacies of society, puts the facts of every-day life in a manner so bold, and yet so evidently truthful, that, as it were, scales fall from the eyes of its disciples, and the panorama of moral philosophy flashes out in a manner so vivid and unmistakable as never to be effaced. The picture is a monochrome, and negativism is the colour!

As the title of this work indicates, the history of the world from the beginning of time has to be sketched, and the author commences with a vivid exposition of the nebular hypothesis, and the cooling down of the earth to the commencement of geologic time, under the headings of its Birth and Infancy. He then describes the commencement and development of vegetable and animal life. Just as in a tree all life is found in the terminal twigs, so "the species of animals we see on the earth are the twigs of the great animal tree, the body and branches of which have long since perished," and the struggle for existence by which the present forms have been arrived at, leads to the adoption of the fundamental maxim, "Be hungry and you will be great," which is proposed in place of the old adage—"Be virtuous and you will be happy." Further on the same principle is illustrated in a very different manner: "only iron-clad and zinc-covered trunks are seen on the Western American railroads, all others being smashed up by the remorseless pitching of the baggage-men, employed, it would seem, for the purpose; this is the *Survival of the Fittest.*"

After the world had passed through the early ages of only protoplasmic and invertebrate forms, the vertebrate era commences with "the fishy period." From the amphibian type was developed the reptile, as we are told, thus: "The lizard differed from the frog, and the newt &c., chiefly by breathing entirely through lungs instead of gills, and thus dispensing with water, except as a beverage; forced to magnificent temperance by long ages of death; driven to it by the great propelling power to which we are all more or less victims—the force of circumstances. Thus a second nature is given, and a new type is created. The fish became a reptile. There was no more longing for the good old times; a more glorious prospect in life the world has never seen. The untrod earth was a garden of thick fleshy plants; whole oceans of appetising insects and delicious worms awaited only

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the eating. And the new-comers grew and throve as never has any immigrant race before or since." The tendency in animals, as we ascend in the scale of life, to assist one way or another in the further maintenance of their offspring, either by development of a nutritive yolk or by feeding them after they are hatched, is certain. "The explanation of this is very simple. As the population of the earth ever increases and competition grows sharper, it is those who have this assistance in their younger days that are enabled to succeed in the world, and to arrive at maturity. And these possess the inheriting tendency to do the same, or very likely a little more, for the new generation than their parents had done for them. 'If I could only give John a thousand dollars when he is twenty-one, I shall be satisfied,' says the sire; 'my father was only able to give me a hundred and a freedom suit.'"

The Reptilian Period is followed by "the Age of Brutes," wherein the maxim "might is right" was the ruling power. This is followed by "the Anthropological Age," that of the present time; a time of advance according to evolution, and not of decadence, for all we know tends to show that "the course of history is one of progress, and that consequently man is an elevated and not a fallen being; that he is a perfected creature and not a degraded divinity; that his course is Excelsior, onward and upward, and not downward." And if we consider the age of Man, in contradistinction to that of brute and reptile, to have been that in which man first appeared on earth, what may the present be considered—but the age of Woman. "Historically considered, her case is very strong. If the position of woman continues to become exalted in the future at anything like the rate it has advanced in the past—granted that she began as the slave of a brute—that future will show not an equality, but woman the ruler, the subordinate man; and these are advantages in her favour which none but the naturalist dreams of."

"A complete equilibrium—when for every desire there shall be a gratification," is the author's deduction as to the future, things being as they are; but "it would seem that life on earth is doomed to die a violent, and not a natural death. Man proposes, but the attraction of gravitation disposes," and so "we must be resigned, remembering that after all we are but a mere speck in the *great* celestial economy, which will lose nothing by our death."

The above short account of this eccentric and amusing work, which excels more by the quaint way in which well-known facts are put, than by anything original in itself, will be best supplemented by a perusal of the original.

OUR BOOK SHELF

The Elements of Chemistry. Theoretical and Practical. By William Allen Miller, M.D. D.C.L. LL.D., late Professor of Chemistry in King's College, London. Revised by Herbert M'Leod, F.C.S., Professor of Experimental Science, Indian Civil Engineering College, Coopers Hill. Part I. Chemical Physics. Fifth Edition, with additions. (London: Longmans, 1872.)

ALTHOUGH Parts II. and III. of this well-known manual have needed frequent alteration and revision as the science advanced, Part I. has, until quite recently, experienced but little change from its well-known form. The recent great advances which have been made in what is now so well known, or at least so often heard of, as solar chemistry, have necessitated considerable additions to the edition of 1867, the last that left the hands of the lamented author.

The name of Mr. M'Leod is a guarantee that the work has fallen into good hands. At page 196, a most complete and well-condensed statement of the present aspect of the subject will be found. The early Indian observations of Captain Herschel and others are referred to, and an account of the discovery of the method of observing the chromosphere without an eclipse is given, and also a sketch of the nature of the phenomena thus observed. A very good statement of the present state of our knowledge with regard to the thickening of the F line, and of Frankland and Lockyer's researches on that subject, is also given, and reference is made to their remarkable observation of the different lengths of the metallic lines above the pole, an observation which has since lead to such important results in connection not only with solar and stellar, but with terrestrial spectroscopy. The additions conclude with a very clear and succinct account of our knowledge of the movements of the gaseous masses on the surface of the sun, and the means of measuring their rapidity and direction. The nature of the spectroscopic phenomena of sun-spots is also described, but somewhat briefly. The added portion is illustrated with twelve woodcuts.

Mr. M'Leod's hand is again visible in the chapter relating to atomicity, where he has added in notes several important points in modern chemical theory, which had not been sufficiently explained in the original work of Dr. Miller; and we also notice in the body of the book a short explanation of the graphic and symbolical formulæ now so much used in explaining chemical facts to the student. We most cordially welcome this new and improved edition of an old friend, and congratulate the present editor on the share he has had in producing it.

R. J. F.

The A B C of Chemistry. By Mrs. R. B. Taylor. Edited by W. Mattieu Williams, F.R.A.S., F.C.S. (London: Simpkin, Marshall, and Co., 1873)

THIS little book is intended apparently for the use of very young children. The attempt to explain the nature of the elements by analogy with the letters of the alphabet is somewhat obscure, though it would perhaps be difficult to find a different method. The book is divided into lessons, and each lesson followed by questions which are, on the whole, well selected. The same cannot, however, be said of the experiments at the end of the book, which all smack strongly of the "conjuring trick." We cannot coincide with the editor in recommending the book to artisans and business men, who, we think, might attempt something a little more advanced, even as a first book. For those, however, who wish to teach children chemistry, it will no doubt be useful.

Third Annual Report of the Wellington College Natural History Society, December 1870 to *December* 1872. (Wellington College: George Bishop, 1873).

IT is disappointing that the first words of this report, as in the case of the Rugby Society which we noticed recently, should be a confession of partial failure: "Natural History," the Preface begins by telling us, "does not flourish at Wellington College . . . The chief reason undoubtedly is, that during the past two years the older Fellows—and in particular the Sixth Form—have ignored the existence of the Society altogether." Judging from what is said at p. 36, the apathy of the older members of the school is owing to some antagonism which exists between the Natural History Society and the Debating Society attached to the school. But, with Mr. Penny, we

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